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The Intersection of Family, Gender and Economy in the Developing World

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The Intersection of Family, Gender and Economy in the Developing World

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The present paper has been prepared for the IYF secretariat with the cooperation of the International Research and Training Institute for the Advancement of Women. It was written by Rae Lesser Blumberg, with the assistance of Kathryne Pethan, University of California, San Diego, United States of America.

The views expressed in this paper are those of the author and do not necessarily reflect those of the United Nations Secretariat.

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Introduction

During the 1990s, there has been an upsurge of interest in the family among the major development agencies. For the United Nations, 1994 is the International Year of the Family (IYF). The present paper is a contribution of the International Research and Training Institute for the Advancement of Women to IYF, linking the themes of family, gender and economic development. In addition, the United States Agency for International Development (USAID) launched its own family and development initiative in December 1990, in order to "strengthen and increase the participation of families in the development process".*

The present paper applauds these emphases on the family as a vehicle for development, but it makes a case for the importance of viewing the family as a flexible institution rather than a monolithic black box.** It is time to break open that box and examine its contents. The paper is divided into five sections. First, the continuum of the internal economy of the family is posited and discussed. Second, hypotheses and data are presented about the importance and consequences of income under the control of family males versus females. Third, the external economy of the family is examined, including kinship patterns. The fourth section deals with female-headed families. Finally, two intertwined problems, the African food crisis and its population crisis, are discussed as a case-study. It is argued that both these problems are exacerbated by the use of the black-box model of the family as a basis for development assistance. The paper ends with a brief conclusion and several policy recommendations about taking the internal economy of the family into account.

Myth of the monolithic family versus the reality of the flexible family

Both principal paradigms of development - the mainstream, modernization model and the left-of-centre dependency/world systems/neo-Marxist approach - share the same view of the household and family*** as a monolithic black box, indeed, as the basic unit of analysis. From this perspective, it does not matter who does the work, who receives the information (e.g. on agricultural extension), or who earns the income, because the co-resident family/household is a unit that pools resources. In fact, most mainstream development efforts follow Becker in describing this unit by a single production function [9].

Since the mid-1980s, however, a growing group of gender or women-in-development (WID) researchers have proposed an alternative view to this black-box family or household. Their approach focuses on the internal economy of the household, differentiated along axes of gender and age, and characterized by relations of competition as well as cooperation ([20], [24], [35], [60] and [67]).

The internal economy perspective maintains that it does matter how development-assistance-linked information and economic and welfare resources are distributed to male and female and to

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*The initiative's purpose is "to use the family ... as a starting point for analysis of what people need, how they use the resources they have, and as an organizing principle for mobilizing the energy of people to create progress" ([80] and [136] summarize the major thrusts of the initiative).

**Three caveats are noteworthy: in the present paper, the terms "monolithic" and "black box" family/household are used interchangeably or in combination as "monolithic black box". This monolithic black-box model implicitly assumes both a male household head and economic isolation from extended kin whereas the flexible family model proposed in the present paper subsumes both the external economy of the household (section III) and female-headed families (section IV).

***Despite decades of anthropological and sociological writings on the sometimes subtle differences between household and family (Jaquette [80] gives a recent summary), the development literature has generally co-flated the two. Accordingly, although the present paper emphasizes family units, defined in terms of kinship as well as residence, it treats co-residential households and families interchangeably (unless the blood tie vs. dwelling-unit distinction is the focus of a particular discussion).

senior and junior family members. Moreover, this view insists that the targeting of development aid to the family needs to be sensitive as to how income - as well as time, labour and calories - are divided among family members.

In the present paper, selected hypotheses are reviewed from Blumberg's theories of gender stratification ([20] and [22]) and gender and development ([19], [20], [24] and [39]), which illuminate the triple intersection of family, gender and economy. The hypotheses are used to focus the discussion on why it is important to take the perspective of gender and the internal economy of the family into account. Then, the propositions are linked to concrete outcomes that affect the wealth and well-being of both families and developing countries. It is maintained that it is important to deal with families in planned development efforts, but that the basic model of the family or household must change from the monolithic black box to the flexible family.

This flexible-family model assumes that male-headed families are arrayed on a continuum based on the nature of their internal economies. The continuum ranges from the (empirically rare) single-production-function unit with no internal differentiation at one end to the "separate-purses" family at the other. At the separate-purse end, income streams and expenditures tend to be distinct for men and women - his, hers and (a little) theirs - and individualistic, bargaining strategies predominate ([100] and [101]).

Four points concerning the flexible-family model should be previewed here. First, empirically, the separate-purse end of the continuum is most prevalent in sub-Saharan Africa. Second, for reasons linked to poverty, the majority of the world's families tend to be closer to the separate-purse end than the single-production-function or monolithic-black-box end of the continuum. Third, the significant boundary of the family may not coincide with the walls of its residence: the external economy of the family and larger kinship patterns must also be looked at. Fourth, the flexible-family model incorporates not only husband-wife units, but also the growing legions of female-headed households as well.

I. A proposed continuum of the internal economy of the family

Families around the world may generate income, intimacy and children, but handle them in many different ways. Nevertheless, Blumberg posits that it is relative control of income by women versus men that has the biggest impact on both gender stratification and family welfare ([20], [22] and [39]. Some propositions concerning the internal economy of the family [20] are given as follows:

(a) It is proposed that worldwide, there is a continuum of the extent to which families or households are unitary, common-pot entities as opposed to having at least partially separate purses for male and female, senior and junior, members;

(i) Gender and age can vary independently within the internal economy of the family. Husbands, wives and different children (e.g. eldest vs. younger sons; boys vs. girls) may be favoured or penalized to differing degrees ([20] and [133]). Here the focus is more on gender - men versus women - than age, especially children versus adults;

(ii) There is a worldwide continuum of the extent to which wives (legal or consensual) get to keep or control the resources or income they have generated. Although it ranges from controlling all earnings to controlling none, empirically, few wives surrender control of all - or even most - of their income ([34] and [90]);

(iii) There is also a worldwide continuum of the extent to which women have provider obligations towards their children (and extended kin). Overall, however, as men migrate, families fracture and economic crisis exacerbates poverty for many, women's provider obligations are rising. The percentage of women earning income also is rising ([25] and [125]), but women's provider obligations may be rising faster than their earnings;

(b) The internal economy of the family varies greatly by geographic region, class and ethnicity;

(c) Geographically, the internal economy is strongest in much of sub-Saharan Africa. Often (especially where polygyny remains common and marriages are unstable), husbands and wives maintain separate purses for most income streams and expenditures ([66], [67], [72], [73] and [128]). Frequently, African women have strong obligations as providers, especially towards their own children. Most women are economically active, predominantly in low-resource farming and market trade, although this often is not recorded in national accounts data on the measured labour force ([6], [16], [58], [59] and [145]). Nevertheless, according to recent studies, African women grow up to 80 per cent of locally produced food [116];*

*In male-headed households, where women have few or no opportunities to earn own-account income, the internal economy may be reduced to the single-production-function model with respect to a family's adult men and women. This is not too common worldwide, and decreasingly prevalent. For example, such a situation exists in rural areas of Yemen, where half the young men typically work in the Persian Gulf, sending remittances home to the senior male of their families, while the women act as unpaid family labour in agriculture ([49] and [79]). It also occurs in a number of remote colonization projects in tropical lowlands, mainly in South America ([31] and [119]). It more frequently occurs among South Asian and Middle Eastern groups where women producers in a family enterprise are treated strictly as labour and all income is channelled only to men (e.g. among the Indian lacemakers studied by Mies [97]). But even in the Arab world, micro-level studies show much higher rates of women's income generation than are recorded in national accounts. For example, Nassif ([102] and [139]) found that some 40 per cent of the women in a Tunisian village earned income, though only 13.2 per cent of rural women were officially counted as being economically active.

(d) Worldwide, the central tendency of this posited internal economy of the family continuum is closer to the separate-purse end than to the common-pot or single-production-function end;

(e) The main reason* that most families are closer to the separate-purse end is social class: the majority of the world is poor and the relationship between social class and women's economic contributions is usually inverse:

(i) The lower the social class, the higher the proportion of women who are economically active;

(ii) The lower the social class, the higher the proportion of household subsistence that women contribute;

(iii) The lower the social class, the higher the proportion of female-headed households ([28], [30] and [47]);

(f) The main exception to (e) above, the inverse relation between social class and women's economic contributions, is by ethnicity. Highlands Ecuadorian Indians, for example, are much more gender egalitarian than neighbouring mestizos. Women in better-off versus worse-off Indian families are equally likely to generate much of the household food and income, and female-headed households are equally rare among richer and poorer families ([5], [31], [36] and [109]). Among mestizos, the propositions of (e) (i), (ii) and (iii) above prevail and the ideal woman is economically inactive.

These propositions and the proposed continuum model of the internal economy of the family focus attention on the home as an arena of competition and conflict, as well as cooperation. Despite considerable regional and cultural variations, most families or households in developing countries are not monolithic entities in which all members subordinate their individual advantage and pool their resources to assure a family survival strategy masterminded by the (male) household head. The extent to which anything is shared varies widely. A few dimensions** (other than income, which is considered in the next section) that may or may not be equally shared, but which are important to family wealth and well-being, include labour, information and food.

Labour power. Time-budget studies invariably find that women work longer total hours (because of the double day of productive and reproductive tasks), although the amount varies greatly (see, e.g. Carr and Sandhu [51]).

Information. Numerous studies find that technical advice given to the husband about farming tasks carried out by the wife is often not shared with, or incorrectly transmitted to, her. These include cases of Cameroon [86], Ecuador [13], Thailand [11] and the United Republic of Tanzania [70].

In the Thai case, because men who were not full-time farmers were trained for operations done by their wives, "crops were planted incorrectly and did not grow, the power tillers provided by the project could not be used, and a nitrogen-fixing crop intended to fertilize rice did not get planted. Even when the husband was present, advice on crop production was incorrectly transmitted from husband to wife" (Carloni [50]).

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*See, for example, Mencher on India [96], Roldan on Mexico [111], Blumberg [23], Blumberg and Okoro [26], Matlon [95] and Norman, Simmons and Hays [104] on Nigeria; and Deere [55] on Peru.

**Other dimensions not treated here but unequally distributed by gender are technology (Boserup [40]: men have greater access) and, even more fundamentally, property (women usually have less but not always; see Blumberg [14] and [22], and Blanc-Szanton, Viveros-Long and Suphanchainat [11]).

Food. Even calories have been found to be unequally distributed by gender and age within families (i.e. not in proportion to individual size and energy requirements). Sometimes, this merely results in the malnutrition of disadvantaged members, as in Senauer's studies in the Philippines [124]. In the extreme case, where females are devalued and income prospects for adult women are grim, the death rates of girl infants are higher ([113] and [121]); lower access to calories and health care contributes to this outcome.

Indeed, in the case of Bangladesh, China, India, Pakistan and west Asia, Sen [122] argues that some "100 million women are missing"; i.e. there are fewer than the 102 to 106 women per 100 men that characterize regions such as Africa or Europe. Yet even in these female-deficit countries, there is internal variance. In Kerala State, India, for example, he notes, surviving traditions of matrilineal descent and inheritance buttress a contemporary situation where there are large proportions of working women in jobs that command respect, and literacy is high for both sexes; demographically, there is no female deficit either. There are 104 women for every 100 men, compared with an all-India rate of only 93 women per 100 men, and a deficit of 37 million women [123]. Analogously, Rosenzweig and Schultz [113] found a lower female infant mortality rate in areas of India where adult women had higher earnings.

In short, the internal economy of the family can extend literally to matters of life and death. These studies on female survival show that where adult women are income producers, their daughters are not sacrificed. Even when the stakes are lower than life itself, the extent to which women generate and control income affects family welfare. This is because of the different ways in which men and women spend the income that they control.

II. Income under female versus male control

A few relevant propositions from Blumberg's theories of gender stratification and gender and development about the gendered control of income and its consequences are given below. It is proposed that male/female control of income is the most important dimension of the internal economy of the family in determining the distribution of family power and well-being.

In fact, the main hypotheses of Blumberg's stratification theory are:

(a) Women's economic power relative to men (defined as control of key economic resources such as income, property and other means of production) is posited as the most important and achievable* (though certainly not the sole) independent variable affecting gender stratification at a variety of nested micro and macro levels ranging from the couple to the State [22];

(b) Unless she is a household head, a woman may not, however, get a dollar's worth of economic power for every dollar she brings into the family because of what are termed discount factors ([20], [22], [33] and [39]). Discount factors may operate at both the macro level (e.g. the State) and the micro level of family and community, and subtract or add pennies to that hypothetical dollar, depending on whether they are negative or positive;

(i) At the macro level, the greater the level of gender inequality (i.e. the more the political, economic, legal, religious and ideological systems are a disadvantage to women), the greater the negative discount rate, and the less leverage a woman gets from each dollar;

(ii) At the micro level, discount rates may be negative or positive:

a. These include the gender ideology of each partner, as well as the prevailing gender ideologies of their class and ethnic group at the community level. If the ideology says that a woman should be an economic dependant, it will nibble away many cents of the potential leverage she gets from each dollar, since she never should have earned it in the first place;

b. They also include the relative commitment of each partner (the less committed one has more leverage by the principle of least interest), the relative attractiveness of each partner, the extent of their perceived need for the other's income, and even their relative assertiveness;**

(c) Additionally, one gets more power out of controlling and allocating surplus than bare subsistence. Blatantly denying food to hungry children is rarely an option within the family, and may be why poor women do not get more leverage from the often high proportion of resources that they provide. But for both genders, the more surplus controlled, the greater the economic power;

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*Empirically, of the four major sources of power discussed by Lenski [92] - economic, political-hierarchical, force and (slightly less importantly) ideological - women have fared best with respect to economic power. There are many societies where women have an equal or larger share of economic power at the micro level of the family and sometimes the community. These include a number of hunting-gathering and horticultural peoples and a few more complex societies, ranging from ancient Crete [62] to contemporary north-east Thailand ([11], [14] and [106]). Actually, women's share of relative economic power varies from near-zero (as among the Azande of Sudan) to near-total (as among the Iroquois of colonial North America; see Brown [42], where women controlled virtually the entire economy). But in no other type of power do women get beyond the 50-50 mark: there are a few societies that proclaim an ideology of gender equality but none that hold women superior; nor is any society known in which women have even an equal share of political power. Moreover, women fare worst with the power of force, where men's one-third to one-half greater upper body strength and disproportionate control of weapons give them almost universal sway over women.

**Most females are not socialized to bargain hard to realize economic leverage in intimate relationships ([52] and [63]).

(d) Adjusting a woman's overall economic power by these macro- and micro-level discount factors and the surplus versus subsistence income distinction shows her net economic power, posited as the best predictor of a variety of consequences:

(i) The greater a woman's net control of income, the greater her increase in self-esteem and self-confidence ([20], [25], [34], [90] and [110]);

(ii) The greater a woman's net control of income, the greater her leverage in fertility decisions, i.e. the more these reflect her own utilities versus those of her husband, the extended family, the State etc. ([24], [25], [34], [39] and [110]);

(iii) The greater a woman's net control of income, the greater her leverage in both family economic and welfare decisions. This means the greater her voice and vote in such economic decisions as buying or selling land, animals or other property. It also means more say in domestic welfare decisions, such as which children are sent to school for how long; the appropriate level of health-care spending for each member and illness, as well as other expenditures on items of well-being ranging from shelter to shoes. It also means the greater her voice and vote (power) in the marital relationship (see references in Blumberg [20], [24], [25] and Blumberg et al. [148]).

(e) Mere work in economic activities (or even ownership of economic resources) does not translate into economic leverage in the family if the person derives no control of economic resources from that work ([2], [3], [4], [20] and [24]);

(f) Women who lose income lose domestic power more quickly and sharply than they gain it when income rises ([20], [34] and [39]);

(g) Men tend to spend income under their control differently from women who have provider responsibilities (even as providers of the last resort), with women focusing more on children's well-being and family subsistence. Specifically:

(i) It is the mother's, rather than the father's, income or food production that tends to be more closely related to children's nutrition (see Blumberg [20], [24] and [25] for a review of the literature);

(ii) Women tend to contribute a higher proportion of their income to family subsistence, holding back less for personal consumption ([20], [24], [25] and [96]);

(h) Women tend to allocate labour towards activities that put income (and/or food if they have provider obligations) under their control and, to the extent culturally feasible, away from activities that do not - even if these are somewhat more profitable for the husband ([20], [24], [25], [39] and [82]).

Presenting data on all these propositions is beyond the space limitations of the present paper, so only those most relevant to the intersection of family, gender and economy are discussed. These are the hypotheses that link a woman's income control to her say in fertility and family welfare decisions, and her spending patterns to family well-being. Moreover, in this section, the focus is on male-headed households (in section IV, some of these propositions will be assessed for female-headed households).

When wives control and spend income: selected consequences

The greater a woman's net control of income, the greater her leverage in fertility decisions (hypothesis (d) (ii) above).

It can be argued that for a woman, controlling her own fertility in accordance with her own wishes is the most basic dependent variable that flows from her increased economic power.* A woman's life chances are enormously different if she starts having children every two-plus years from her mid-teens on, versus, for example, starting her fertility career several years into her twenties, and having fewer, more widely spaced offspring.

Perhaps this is why two Latin American studies, a generation apart, found that initiating contraception is an early priority of women who begin earning significant income. Weller's study [146] in Puerto Rico found that when women entered the labour market, their household decision-making power rose, and beginning to use contraception was one of the first ways in which they exercised their greater control. In summer 1993, the author of the present paper studied the impact of potable water systems in 14 communities in rural Ecuador [27]. In two of these communities, following a focus group interview on the impact of the water, she was besieged by women who wanted help to put them in touch with some organization through which they could gain access to contraception. As it turned out, these were precisely the two villages where the women had reaped the greatest economic profit from recently installed water systems.

The first community, Bella Vista, is a very poor, heavily eroded Quichua Indian community with a spectacular view of the 21,500 foot-high Mount Chimborazo. There, the water made it possible for the women to buy garlic, wash and peel it, and sell it at a value-added price. Cachiguzo, the second, is a mixed mestizo community in the southern Andes where 68 women and one man (the sales manager) formed a sweater production group. The women used the water to wash and dye the wool, using imported colour-fast tints. They knitted and sold a minimum of 100 sweaters a week, earning a substantial income.

In three of the other 14 villages in the sample, women had managed to use the water to increase their incomes slightly; in the rest, the water had not yet made an economic impact. In all 14 villages, the same (single) question about fertility was asked: how many children each focus group member had. But only in the two villages where women had most increased their income from the water was the author queried - urgently - about how to get access to family planning.

Two more examples also come from Latin America.

In Mexico City, Roldan ([110] and [111]) studied 140 poor women who did garment or other industry piecework in their homes; 53 households were followed up intensively. In 33 very poor households where both husbands and wives contributed to a common pool, there was a clear relationship between the proportion contributed by the woman and her say in fertility decisions. For example, the decision to have more children was one made by the woman alone in 50 per cent of the cases where wives contributed 40 per cent or more of the total income; in contrast, it was the woman's sole decision among only 20 per cent of the cases where wives provided less than 40 per cent of the income, and where husbands were the main providers.

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*Although in most parts of the world, women with increased leverage opt for lower fertility, there are exceptions. The most notable is sub-Saharan Africa, where women tend to want - and seemingly need - many children to help them. Especially in the rural areas, increased environmental degradation, male migration, and children's school attendance all have increased women farmers' labour burdens. Children fetch water, and increasingly scarce fuelwood and fodder, help in cultivation, tend babies and animals, and, as adults, help with crisis and old-age support. Under these circumstances, women may prefer more children than their husbands [23] and have enough autonomous control of income to realize their own preferences.

In Guatemala, in 1985, Blumberg followed up a 1980 study by Kusterer et al. [90] of the impact of an agribusiness enterprise on the lives of three villages of poor, largely Indian contract growers and the Ladina (mestiza) women who worked in its processing plant ([34] and [35]). The villagers grew broccoli, cauliflower and snowpeas for the wholly owned subsidiary of a transnational corporation based in the United States of America, and the women processing-plant workers froze and packed the vegetables for export to the United States. The company paid these women the minimum wage, and during the eight-to-nine-month high season, shifts of 12-16 hours a day, six days a week, were not uncommon. The result was a wage level as high as that of an urban, male blue-collar worker: enough to transform the women's lives. The women kept control of their earnings, and by 1985, the fertility impact was unmistakable.

Among 15 of the 1980 veterans in the 1985 sample (median age of 32.5 years), only 13 babies had been born between 1980 and 1985. These women averaged only 2.2 children each and had taken control of their fertility: seven said that they would not have any more babies (at median age of 37 years, mean rate of 2.3 children). In contrast, in 1985, 20 women from the only contract-grower village with a substantial Ladina population (Patzicia) averaged 5.2 children at a median age of 33.5 years. Even though about half these women helped their husbands in the fields, the company's cheque was made out solely to the husband. When asked about further fertility, the Patzicia wife's frequent response was: "Well, I don't want any more but my husband does, so I'll have to continue."

A final example comes from Thailand. In the north-east, women have an exceptional degree of economic power, based on the traditional control of all money entering the household, regardless of who earned it, and a kinship system that gives them strong structural leverage. Kinship involves matrilineal descent and matrilocal residence; that is, kinship is reckoned through the female line and the young couple goes to live near the bride's female kin. Until the present generation, the inheritance of rice land also was matrilineal, from mother to daughters; now, in the wake of deforestation, drought and population pressure, sons as well as daughters are beginning to inherit a share of the land ([11], [14] and [106]). Since the youngest daughter continues to inherit the house and the household spirits stay with the house, women also have some "spiritual power".

What many consider to be the world's most effective family-planning programme has brought fertility down to two to three children per woman in a single generation [132]. It is suggested, however that, in addition to the aggressive family-planning effort, two other factors seemed to have played a role in the drop in fertility. The first is a visible need for reducing fertility (the deforestation of much of the north-east during the Viet Nam war resulted in intensified drought, and other negative environmental consequences increased pressures on a land already overcrowded). The second and, it is proposed, key factor is that women have the (economically based) power to control their bodies. In research conducted in 1993 in four north-east Thai villages, both men and women farmers told the author of the present paper that the couple discusses family planning but the wife has the final say. In addition, more women are opting for sterilization after two children, even if those children are two girls [14].

In northern Thailand, which is richer and wetter than the north-east, kinship is also matrilineal and matrilocal. However, there is more socio-economic stratification, more influence from the more patriarchal Chinese, and, in addition, men outearn women and have more power in family decision-making. In one lowland village, the author was told that the final decision on family planning was joint, not the woman's [14].

The research also involved four villages of the Karen ethnic group, one of the six main hill tribes of northern Thailand. Traditionally, all villages practise slash-and-burn horticulture on the steep, forested slopes; formerly they cultivated opium poppies to varying degrees. The Karen are matrilineal and matrilocal, but men outearn women. Even so, according to Care International workers, Karen women have more power and much higher rates of contraception than the neighbouring Hmong women. The Hmong are patrilineal and patrilocal and women are highly subjugated. In the Hmong village in question, men have already cut down their remaining forest

and currently earn considerable income from intensive vegetable farming.* These men want many children to help them farm, and therefore veto family planning.

The greater a woman's net control of income, the greater her leverage in family domestic welfare decisions, including those promoting children's education (hypothesis (d) (iii) above).

Specifically, it is hypothesized, income-controlling women will not only promote education, but will also tend to be more even-handed about educating girls as well as boys.**

In a recent study, Blumberg et al. [148] tested this hypothesis with random sample data from a household survey undertaken in Santiago, Chile. The actual hypothesis proposed that where women have purse power, either by outearning their husbands or heading their households, favouritism towards boys in secondary education is eliminated. The hypothesis received empirical support: although in male-headed households, boys were significantly more likely to receive secondary education, this was not the case if the woman earned more than her spouse, or was a household head. (This study is further discussed in section IV below on the mother-child family.)

Women who lose income lose domestic power more quickly and sharply than they gain it when income rises (hypothesis (f) above).

Two examples of this rapid decline in female power with loss of income emerged in the study of the Guatemalan ALCOSA agribusiness project ([34], [35], [38] and [39]). First, in the village of Patzicia, one interviewee was a woman who had moved there recently when her husband inherited a plot of land from his father shortly after losing his job in Guatemala City as a surveyor. In the city, she had always worked and marital decisions were joint. They decided to raise broccoli on contract for ALCOSA, the agribusiness firm. Since ALCOSA pays by cheque made out to the husband alone and she has no independent source of income, she is now completely dependent. The joint decision to take the contract was the last in which she had a say. Now she works harder than ever but he makes the decisions: how much to spend on food, clothes, school expenses etc. and even whether she should have more children.

Second, in the Mayan Indian village of Santiago Sacatepequez, there was a thriving cooperative, and it had negotiated a master contract with ALCOSA for raising broccoli and cauliflower. In research conducted in 1980 [90], women worked three days a week farming contract and other crops; the husband or wife could deliver the ALCOSA crops and collect cash from the cooperative. Women also earned income from selling in the market in Guatemala City three days a week. But in 1984, the cooperative switched to paying by cheque to the legal member, who was always the husband if he was alive, even though the women were by then working up to four days on the contract crops (and had less time to sell in the market). Their power fell sharply. In 1985, a purposive sample of 17 women complained that they had less voice in all decisions, from how much to plant of which crops to buying food. The cooperative social staff noticed the decline in women's autonomy and leverage. They noted that even though many husbands were earning enough to buy vehicles and land, there was no corresponding rise in spending on children's welfare, including nutrition. Women's income and status were so diminished that a number were unable

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*According to Care International workers, these vegetable farming techniques will probably lead to considerable land erosion if continued, but for the present they make money.

**Where the returns on girls' education are drastically lower than those of boys, and/or where women's livelihoods depend on their daughters' help, they may not push for their education. An example of this can be found among Muslim Hausa women in northern Nigeria who live in strict seclusion, but who run various microenterprises from inside their compounds. They rely on their non-secluded pre-adolescent daughters to hawk their wares and have resisted sending their girls to school ([23] and [117]).

to attend home economics meetings arranged by the cooperative social staff: their husbands wouldn't let them.*

In contrast, the trajectory is not as smooth or fast when women's economic power increases. Women may feel greater self-confidence but take a slow and cautious route to asserting themselves more. One reason may be to avoid battering. When a woman's relative income rises, especially if this happens while her husband's income falls, there is a possibility of increased domestic violence. The more he feels threatened by her relatively enhanced economic position, the more likely he is to retaliate with the male trump card: physical force (see Roldan [110] and [111] on outworkers in Mexico City). But as the author of the present paper found in a study of 61 pre-industrial societies, once women's greater economic power is consolidated, they are less subject to male violence ([29] and [33]).

It is the mother's, rather than the father's, income or food production that tends to be more closely related to children's nutrition (hypothesis (g) (i) above).

Kumar's 1978 study [89] undertaken in Kerala, India, found that mothers with resources under their control, kitchen gardens and/or income, had better-nourished children. The study involved a random sample of 48 landless or near-landless families (72 per cent owned under one tenth of an acre). No increase in child nutrition was found as paternal income rose, although child nutrition was enhanced by increasing maternal income. This research was the first to document empirically the stronger relation of child nutrition to women's income than to men's.

Since then, Kumar's results have been replicated around the world. Another early study by Stavrakis and Marshall [129] on the effect of the introduction of commercial sugar cane in a Belize village was less quantitative and used a purposive, not a random, sample. Yet it, too, found that increasing the income under male control (in this case, from sugar) did not translate to better nutrition for children. While the consumption of fruit, meat and fish declined, "consumption of soft drinks and frozen *koolaid* increased by 255 per cent" ([129], p. 161).

Senauer's research in the Philippines [124] also found that the father's (increasing) wage had a negative impact on his children's nutritional status in the long run, whereas the mother's income had a positive effect. Kennedy and Cogill's [85] work in south-western Kenya found a similar improvement in children's nutrition from income controlled by the mother. Tripp's research [134] in a drought-prone and poor area of northern Ghana discovered that of all the variables examined, it was the mother's trading income (which she completely controlled) that had the most significant association with the child's nutritional status.**

Additionally, Johnson and Rogers [81] found the same pattern for a national sample of families in the Dominican Republic; the effect proved most pronounced in the lowest income quartile.

The most spectacular findings on the differential impact of female-controlled versus male-controlled income within the household on child nutrition come from Engle's study ([64] and [65]) of a random sample of 294 children and their families from two Guatemalan industrial towns. There, the higher the percentage of total family income that the mother earned, the better the child's nutrition; whereas, for fathers, the proportion of income contributed proved the best predictor. Bruce and Lloyd [44] recast Engle's regressions in more dramatic terms, noting that the attainment of an additional half a standard deviation of height for a child (a standard measure of child nutrition) would require $11.40 a month if earned by the mother and $166.00 a month if

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*Other studies also have found that women with little or no income have less freedom to participate in project activities (e.g. Blumberg [18]); conversely, with increased income, they may become more involved in project and/or community activities [13].

**All these studies are summarized in more detail in Blumberg ([24] and [25]).

earned by the father.* Engle's study highlights the difference between earnings and contributions, which reflects another relevant hypothesis.

Women tend to contribute a higher proportion of their income to family subsistence, holding back less for personal consumption (hypothesis (g) (ii) above).

Clear-cut evidence of this hypothesis is available from Roldan's study of home workers in Mexico City ([110] and [111]), where women in the 33 poor households that pooled income claimed to put in 100 per cent, whereas men held back 25 per cent or more as a personal allowance.** Even clearer evidence comes from Mencher's random sample data on 20 villages in south India [96], where she found that women invariably contributed a higher proportion of their income to family subsistence. Wives earned a mean of only 56 per cent of their husbands' income, but by contributing a mean of 97 per cent of it versus men's mean of 76 per cent, wives ended up contributing a mean of 94 per cent as much as their generally higher-earning husbands.

Why should women contribute a higher proportion of income towards family subsistence? Some have argued that since women earn less than men, their behaviour merely illustrates Engel's law. Formulated by the German economist in 1857, it states that the lower the income, the higher the proportion spent on life's basic necessities [78]. However, the one study that compared the patterns of men and women earning identical incomes found that women still put in more. Mencher [96] found that in one of her 20 villages (Alleppey 1, in Kerala, India), males and females earned the same. Women contributed 92 per cent of their 752 rupees earned, whereas men put in only 76 per cent of their 748 rupees.

These findings have obvious policy consequences. Where income from a development project is channelled only to men as heads of families, many of the benefits to the family's well-being of women's more welfare-focused spending patterns are lost.

There is a final hypothesis and set of data to be examined in this section, and they provide the strongest indication that the monolithic black-box family of shared efforts towards maximizing income is not a sufficiently accurate description of many families' empirical reality.

Women tend to allocate labour towards activities that put income (and/or food) under their control and, to the extent culturally feasible, away from activities that do not - even if these are somewhat more profitable for the husband (hypothesis (h) above).

Jones's econometric study [82] of an irrigated rice project in Cameroon bore out this hypothesis. Although swamp rice traditionally was a crop that women grew and controlled the income from, a new irrigated rice project gave the returns only to the husbands. Everyone still expected the women to continue to cultivate rice.

Jones found the project in economic difficulty because only 3,228 hectares of the project's 5,400 pump-irrigated hectares were being cultivated, despite a 45 per cent increase in rice prices. Moreover, husbands did compensate wives, and at more than their opportunity costs. The reason for the shortfall was that, although women did cultivate one plot of rice as a marital obligation (the local people were patrilineal and patrilocal), only widows who cultivated on their own account, or wives who were compensated well above the average, cultivated two plots.

As it happened, transplanting rice conflicted with the planting and first weeding of sorghum. Everyone - men and women - grew sorghum, a low-return staple that women also used to brew beer, but the sorghum that the women grew was their own. Jones's regressions showed a

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*The mother's income also is related to increased spending on children's health, but space limits preclude the inclusion of these data in the present paper.

**A number of studies summarized in Blumberg ([20], [24] and [25]) show this, including Guyer ([72] and [73]).

1:1 trade-off of days worked on sorghum versus days worked on rice, and most women chose to grow sorghum under their own control, despite its lower return, once they had transplanted just one field of rice for their husbands. While they could, in theory, earn more from what their husbands gave them from that rice, and the family's income would be considerably higher, there was a risk: they were dependent on their husband's mood or financial situation when his rice cheque came. So women reallocated much of their labour towards a less lucrative food crop whose income they controlled and the project suffered.

III. The external economy of the family

Although it is hypothesized that relative male/female control of income and other economic resources is more important than kinship in explaining women's family power and impact on family well-being, the nature of the kinship system also is proposed to have an effect.

Parameters of the kinship system: descent, residence and inheritance

Ceteris paribus, with respect to descent, women fare better in groups with matrilineal than patrilineal patterns; bilateral kinship systems (which characterize most of the West) tend to be intermediate. Yet descent proves less important than marital residence in boosting women's power from the external economy of the family. When the young couple goes to live with the female kin (matrilocality) of the wife, she has access to nearby allies of her own family and gender. They can provide not only economic resources, but also political and emotional back-up. Patrilocal residence tends to be the least favourable to women, unless the inmarrying wives organize. For example, Igbo women of south-east Nigeria band together in village wives' associations. These provide a counterweight to the patrilineage's hegemony [23]. Neo-local residence tends to be intermediate. Finally, the greater women's inheritance rights, the greater their economic power, and the favourableness of the external economy of the family. Full matrilineal inheritance (mother to daughter) is increasingly rare, but on the other side of the coin, legal reforms in various countries are giving more women some rights of inheritance, at least on paper. Worldwide, few groups retain matrilineality and matrilocality. Patri-oriented kin institutions remain the most common in sub-Saharan Africa, as well as in north Africa, the Middle East and west, south and east - but not South-East - Asia. In South-East Asia, kin arrangements tend to be matri-oriented or bilateral. Bilateral kinship characterizes Europe and its former territories in North America, Latin America and the Caribbean; however, women have tended to promote economic and service exchange relations with extended kin, even when the formal kinship system revolves around males.

Kin-based sharing networks

Women may depend more on the external economy of the family than do their husbands. Bruce and Lloyd [44] suggest that defining families or households as bounded economic units is more descriptive of male than female reality. For many poor developing country women, extended kin form a network of support that keeps them afloat. Among African patrilineal or patrilocal peoples, for example, one of the reasons women need their own income (and separate purses) is so they can maintain their obligations or exchanges with natal extended kin. If things go wrong in the marriage, the woman has a place to return to; if she runs out of food or money, she has people to turn to. As an illustration, Guyer [72] studied the patrilineal Beti in Cameroon and found that transfers from people other than a woman's husband (mostly her kin) accounted for 34.4 per cent of her transfer income and 15 per cent of her total cash income. Such largesse must be reciprocated. Thus, when income under a woman's control drops, so may her ability to maintain kin ties, to both her family's and her own detriment. Two more examples are given below.

Belize. Stavrakis and Marshall's study [129] found an exchange network among female kin, although the larger kinship system was bilateral. The network redistributed corn for past favours and provided food and aid to women whose husbands had had a bad crop year, which provided a valuable insurance function for both genders as well as serving as a main basis for female power. But corn production dropped as the men turned to newly introduced sugar cane. Women not only lost the chief staple for in-kind help, but they also lost their main source of income from raising pigs. Women had fed to their pigs 40 per cent of the corn that was not good enough to sell. Thus the drop in both corn production and women's independent income from pig sales dealt a double blow to "kin insurance".

Burkina Faso. Conti [54] found that women who were hurt economically when a resettlement project caused at least a 50 per cent drop in their own-account commercial activities were much less able to continue in extended family exchange networks. Their plight arose because the project did not give women the personal plots they had cultivated in their previous location. Instead, they were expected to work on the staple of the project, cotton. The cotton required 15-hour workdays but the profits were given to the women's husbands. Bereft of time, economic independence and the means of maintaining their ties to their natal kin, i.e. the external economy of the family, the women mounted numerous protests.

In general, sharing or exchange networks with kin (or kin-like close friends) are most common where there are unpredictable fluctuations of sometimes scarce resources. This has long been demonstrated in the literature on hunters and gatherers (Lee and DeVore [91] and Sahlins [115] provide early overviews). Moreover, the resource fluctuations and sharing networks also have long been found among various marginal groups both in the United States ([93], [126], [127], [137] and [138]) and around the world (e.g. Calley [48] on Australian part-Aboriginals; Brown [43] on the Dominican Republic; Peattie [107] on Venezuela). Most of these studies looked at the gender of those most involved in kin-based sharing networks and found that it was women, even in bilateral systems.

Lombardi [93] showed mathematically how such redistribution smooths out fluctuations in the net available resources: it spreads risks.* He also demonstrated empirically, through an input-output analysis, that sharing was what prevented one welfare family in the United States from going below his zero point three times in a single month. (Zero meant no money, no food in the house and nothing to pawn.) In this example, too, the sharing was largely between women.

In sum, regardless of the formal structure of the kinship system, poor women seem more likely than their husbands to buttress their position in the internal economy of the family by exchanging resources with an informal kin-based network; namely, relying more on an external economy of the family. Some of the studies indicate that these external relations are most important to female-headed households, which is the next topic of the present paper.

*He used the same equation, for the damping of a sine curve, that actuaries use in their calculations of expected losses, which set the basis for insurance rates.

IV. The political economy of the mother-child family

When the author of the present paper first explored this topic ([28] and [32]), the literature still stressed the disproportionate prevalence of woman-headed families among blacks in the United States and the Caribbean. Instead, the author argued that the mother-child family was structurally or economically based and widely distributed around the world, rather than a phenomenon linked to being "ethnically Negro", as alleged by Murdock and Wilson [99]. The author also formulated five structural or economic conditions under which mother-headed units might emerge, become prevalent and persist.

Nowadays, there is more awareness that such units are increasing in both developing and developed countries ([44], [46], [68], [69] and [112]), and among diverse ethnic groups in Africa, the Caribbean, Europe, Latin America, the United States and parts of South-East Asia.* There are even data showing that although woman-headed units are most frequently encountered among the poor, not all are poorer than male-headed counterparts [71].

The first four of the five conditions for mother-child families have recently been reassessed after 15 years [30]; they seem to have fared well in predicting the prevalence of such units. After briefly reviewing the conditions, the section below focuses on the consequences of mother-headed versus father-headed families because they provide a clear test of how gendered control of income affects family welfare: it is assumed that in a female-headed unit, the woman actually controls any income she brings in.

Four conditions for the rise and prevalence of woman-child families

The four conditions for the rise and prevalence of woman-child families are:

(a) That the unit of labour, the unit of compensation and the unit of property accumulation be the individual, independent of gender;

(b) That women have independent access to subsistence opportunities. This is a function of, first, the existence of viable economic opportunities open to women through: (i) their own work; (ii) their economically productive children to whose labour or compensation they have access; (iii) inheritance; and/or (iv) State-provided welfare; and, second, women being permitted, and able, to head a separate residence and control property;

(c) That subsistence opportunities open to women can be reconciled with their child-care responsibilities. If women's work can be carried on simultaneously with child-care responsibilities, the condition is satisfied. If not, paid child care might be used, or the formation of the mother-headed unit might be postponed until young children can be cared for by a sibling old enough to do so and/or some other child-care agent, or until no young children are left, and/or until the woman can arrange to receive sufficient income from a working child, property, inheritance, and/or State welfare to permit her to stay home;

(d) That a woman's subsistence opportunities from all sources in the absence of a male head of household not be drastically less than those of the men of her class.

As discussed in Blumberg [30], condition (a) above is almost everywhere more prevalent than 15 years ago: female headship has been facilitated by the rise in economic individualism. With respect to condition (b) above, more and more women are earning income. Their participation in

*Such units are not prevalent in the Muslim crescent running from North Africa to Pakistan [1] or South Asia (see Buvinic, Youssef and Von Elm [47] and Folbre [69] for data on geographic prevalence).

the formal labour force has increased at twice the rate of men's since 1950 ([125], p. 12), and even faster in the burgeoning informal labour force ([10], [15] and [18]). It is now known, also, that income-earning children in a number of countries are more likely to turn over money to the mother than the father (Blumberg [17] on Ecuador; Segalen [120] on England; Blumberg [34] and Kusterer et al. [90] on Guatemala; Wolf [147] on Java). On balance, women's higher rates of economic activity have meant more fulfilment of condition (b) above.

Condition (c) above is the weakest of the four conditions, since economic factors generally outweigh child-care considerations in the formation of mother-child families. *In extremis*, a woman may leave even tiny children alone in a shack while she tries to earn enough to feed them. Nevertheless, there are options. Women heads of household tend to go into informal sector occupations that are more compatible with simultaneous child care, and are more likely to have co-resident extended kin in their home than are male heads of household: part of the reason may be for child care. Alternatively, women may postpone starting such a unit until children are older; almost everywhere, women heads of household are older than men heads of household.

Two points are germane concerning condition (d) above: that female-headed families rise when a woman's total subsistence potential is not drastically less than those of the men of her class. On the one hand, the data indicate that the male-female wage gap has shrunk little in most parts of the world in the last 15 years. On the other hand, more and more developing-country women are earning an absolute level of income that enables them to become female heads of household, especially if aided by an extended kin-based sharing network and, perhaps, children's earnings. For these women, this combination of their own or their children's earnings and the kin-based exchange network may not add up to as much as a counterpart male's income, but it may be enough for them to make it on their own, without absolute penury, thus fulfilling condition (d) above. In affluent countries (e.g. the United States and northern Europe), despite the persisting wage gap, increasing numbers of women earn enough to choose single motherhood without economic help from either kin or State, and the proportion of female-headed units has risen explosively. Moreover, all over the world, men may be less hesitant to leave if they know their wives can earn enough to keep their children from starvation.

The evidence given above on the four conditions for the rise of female-headed families is illustratory and no substitute for rigorous study, but the fact remains that woman-headed families are increasing in large areas of the globe, and almost everywhere the four conditions seem more likely to be fulfilled now than they were 15 years ago. This reality makes it even more important to replace the monolithic black-box-household model with a more flexible one, since the former is unable to account for the growing legions of woman-headed families.

The impact of gender of family head on family well-being

The main dimension of the internal economy of the family treated in the present paper has been relative male/female control and spending of economic resources. Women heads of household are widely acknowledged to control their own income, even by people who are sceptical that wives do so. Therefore, if the same (or stronger) patterns of enhanced children's and family well-being are found in income-earning woman-headed families that were found by comparing income-earning wives versus husbands, the case for proposing a more flexible, less monolithic, model of the family is strengthened. Accordingly, three of the hypotheses that were discussed in section II are re-examined, but this time comparing the performance of male and female heads of household *vis-à-vis*: (a) children's education (by adapting hypothesis (d) (iii) above); (b) children's nutrition (by adapting hypothesis (g) (i) above); and (c) proportion of earnings contributed to family subsistence (by adapting hypothesis (g) (ii) above).

Gender of family head and impact on children's education (hypothesis (d) (iii) above)

There is not yet much evidence, but three studies found that women heads of household highly prioritized education and emphasized the education of girls as well as boys. First, Chant's study of Mexican shanty-town dwellers found that "in female-headed families, there tended to be less discrimination ... toward ... girls, [who] were given opportunities equal to those of boys. In fact, female heads stressed the need for girls to have education, should they be deserted by their future husbands" ([53], p. 646). Second, Koussoudji and Mueller [87] found that children in female-headed families in Botswana received more education than those in male-headed units, but Botswana is one of perhaps three countries in the world where women have a higher educational attainment than men* ([125] and [148]).

The third study is the quantitative analysis by Blumberg et al. [148] of random sample survey data from Santiago, Chile. The subsample analysed involved households containing teenagers of 13-19 years, which is the usual high-school age range (N = 2,519). Some 21.6 per cent (543) of these teenagers lived in woman-headed households. As in most other studies, these Santiago female heads of household proved a little older and less educated than male heads of household (48.4 vs. 45.7 years old; 7.65 vs. 9.42 years of education), and they were more likely to live with extended kin than were male heads of household (43.6 per cent vs. 33.6 per cent). However, these differences paled beside the income gap: the women heads of household earned only half the income, 12,200 pesos versus 24,000 pesos for men heads of household.

In the male-headed Santiago households with at least one teenager, boys proved significantly more likely to go to secondary school (83.6 per cent) than girls (79.0 per cent). Although female-headed units earned only half the income, 72.9 per cent of their boys and 76.7 per cent of their girls went to secondary school. Moreover, it was clear that women heads of household prioritized education very highly to come so close to male-headed households' rates of attendance on only half the earnings.

Gender of head of household and impact on family / children's food and nutrition (hypothesis (g) (i) above)

First, in a random sample survey conducted in Malawi that included some fairly well-off de facto female-headed units receiving absent husbands' remittances, Peters and Herrera [108] found that women heads of household spent a higher proportion of income on food (i.e. a pattern that cannot be accounted for by Engel's law alone). Second, two studies in Jamaica found that women-headed families ate foods of higher nutritional quality ([77] and [94]). Third, Engle's study of 302 urban mothers in Guatemala [64] controlled them for income level - unusual but important since most woman-headed families are poorer - and found that female-headed units spent a greater percentage of income on food for children.

Fourth, turning to nutrition, in Rwanda, when male- and female-headed units were compared, holding income constant, woman-headed units consumed 377 more calories per adult equivalent per day [140]. Furthermore, von Braun and Pandya-Lorch [142] presented four case-studies: in two, children were less likely to be malnourished in female-headed units (von Braun and Wiegand-Jahn [141] in Rwanda; Vosti and Witcover [144] in Brazil). In the other two case-studies, children's nutrition was no worse than in male-headed units, even though female-headed ones were poorer (Edirisinghe [61] in Sri Lanka; Kumar [88] in Bangladesh). In addition, Kennedy's extensive literature review [83] found that the studies for Africa and some of the research in Latin America and the Caribbean showed that the children in female-headed units were better nourished. She does not clarify, however, whether the Latin American and Caribbean

*The reasons involve less male interest in education: poorer males either begin herding cattle at an early age (around 10 years) or migrate to South African mines and other jobs.

studies that revealed contrary findings controlled for level of income, for it is control of income that is pivotal.

For example, Kennedy and Peters' research in Kenya and Malawi [84] found that the proportion of income controlled by women, in both male- and female-headed households, had a significant positive impact on caloric intake and on lowering child malnutrition. Even in the United States, a national study of the WIC programme (a food subsidy programme for low-income women and children under three years of age) found that when males were present, children's height for age was lower [114].

Finally, women's control of food (not just income) also enhances nutrition: in Gambia, the share of cereal production controlled by women added 322 more calories per adult equivalent per day [143].

Gender of head and impact on proportion of income contributed to family subsistence (hypothesis (g) (ii) above)

First, Chant found that, whereas just over half (12) of the male heads of household in her in-depth sample in Mexico held back up to 50 per cent of their income for personal use, "female heads, alternatively, seem to contribute all their wages to family welfare" ([53], p. 642). Second, various studies show that women heads of household are much less likely to spend on alcohol: in Malawi, women heads of household spent 25-50 per cent less ([84] and [108]) and in Jamaica, they spent significantly less [94]. In Côte d'Ivoire, Hoddinott and Haddad [76] found that doubling female-controlled income would mean much less spending on alcohol (-26 per cent) and cigarettes (-14 per cent).

These findings are significant for development efforts, yet these data would never have been examined under the monolithic black-box-household model. Ignoring the varied contents of this black-box can result, and has resulted, in erroneous assumptions and ill-conceived development efforts. Nowhere has this been more the case than in Africa.

V. The black-box model, the African food crisis, excessive fertility and some concluding policy recommendations

First, erroneous assumptions and actions with respect to gender have been found to have negative consequences for the development projects that make them. The major finding of the largest-scale evaluation to date of WID efforts (involving USAID-funded projects) is that:

> "Mainstream projects that ensure women's participation in proportion to their roles and responsibilities within the project's baseline situation are more likely to achieve their immediate purposes and their broader socioeconomic goals than are projects that do not" ([50], xiv).

There is a long list of African development projects that failed to do this and ended up as relative failures while hurting women and families (see Blumberg [12] and [25] for an overview; also, Apthorpe [7], Broch-Due [41] and Hanger and Moris [74] on different projects in Kenya; Dey [56] and [57] on the Gambia; and Jones [82] on Cameroon).

Even without factoring in the problems caused by ignoring gender and holding to an inappropriate model of the family, Africa is currently in deep trouble. The debt crisis has forced 32 countries to adopt structural adjustment austerity measures mandated by the International Monetary Fund [105] or the World Bank. Between 1980 and 1987, the gross national product (GNP) stagnated, population growth rates rose sky-high to 3.1 per cent a year (up from 2.6 per cent in 1965-1973), and GNP per capita shrank 2.8 per cent per year, as fast as it had grown in 1965-1973 ([149], pp. 221-222 and p. 269; and [105], table 2). Worse, currently, food production is lagging ever further behind the world's highest population growth rates.

Yet aside from the gender or WID specialists, very few people are analysing these problems in terms of the neglect of the people who grow up to 80 per cent of the locally produced food ([116] and [125], pp. 5 and 17) and have 100 per cent of the babies: African women. Despite increasing lip service and the occasional programme recognizing the importance of African women farmers, most crop development assistance still is targeted to men, whether or not they are full-time farmers [12].

Why? The first culprit or reason, it is suggested, is the black-box model of the monolithic household. It obscures the reality that, in Africa, men and women maintain largely separate purses, often carry out different farming activities and typically control the income from different crops and animals; thus, they have different incentives.

The black-box model also shuts out the external economy of the family and the reasons for those separate purses. Kinship is overwhelmingly patrilineal and patrilocal, so wives farm their husband's kin group's land, and have only use rights to their plots. Moreover, women continue to be the predominant cultivators (according to Bryson [45] and Murdock [98], men are the principal farmers in only around one fifth of sub-Saharan African ethnic or tribal groups). Additionally, in patrilineal/patrilocal groups, women farmers have a marital obligation to farm at least one plot for their husbands, who typically also get a share of the harvest even of women-owned crops ([45], p. 36). This means that a man with more than one wife prospers. So polygyny remains quite common (for example, it ranges from 30 per cent to 47 per cent in most of the nine sub-Saharan countries included in the World Fertility Study sample ([135], p. 324). Furthermore, women's natal families charge a bride-price to the bridegroom, since he is gaining a valuable producer. Yet the black-box model gives short shrift to the unique regional, cultural and kinship factors that affect men's versus women's incentives; hence, it harms development projects that adopt it.

A second reason for the fact that so little agricultural extension training, credit and input (fertilizer, pesticides etc.) are targeted to women farmers is that most development policy makers and practitioners were trained in Western countries where cultivation is rain-fed plough-based agriculture, rather than the hoe-based slash-and-burn horticulture prevalent in sub-Saharan Africa. Since much of tropical Africa has poor, acidic, easily leached soils too thin to take the plough, this is unfortunate. Even worse, rain-fed plough agriculture tends to be a male farming system, whereas shifting horticulture has long been known to be, overwhelmingly, a female farming system ([8] and [40]). Even when some of these development experts acknowledge that women do work in farming, it does not stop them from automatically targeting agricultural advice and resources to men and home economics to women, just as in the American Midwest. After all, they reason, it is all one family: the information and resources will be shared. Besides, almost all agricultural agents are men (93 per cent at the latest count ([12] and [130], p. 57). Furthermore, it is presumed, often mistakenly, that male extension agents are more comfortable dealing with men [26].

So in attributing blame for the increasing shortfall of food in Africa, the development experts emphasize the "four Ds" of the environment: drought, degradation, deforestation and desertification. They also blame war and civil strife. Many also blame the sins of the State; for instance, bloated bureaucracies, overvalued currencies, and prices that favour urban residents over rural farmers and grant privileges to heavily subsidized import substitution manufacturers over export industries [12]. The shortcomings of the monolithic black-box model - and the neglect of women farmers - are almost never mentioned as factors.

Yet surely it is no accident that the food shortfall and birthrates are rising together. African women farmers get plots with poorer soils from their patri-kin to begin with [103], and now with increasing male migration and individualization of land tenure, they have to keep those plots in production too long.* The women farmers cannot afford to let the plots lie fallow and regenerate because they might not get a replacement plot from their husbands or patri-kin and the young men who used to do most of the heavy bush clearing are in the cities. Moreover, as the environment further degrades, and deforestation brings drought, it takes longer to fetch fuelwood, fodder and water (especially in the dry season). These last three tasks are almost always women's responsibility but children typically help, even if only when they are not in school. In fact, before the eldest is 12 years old, the children of a woman may be doing the work equivalent of one adult. Furthermore, women have the traditional obligation to feed their children, as well as the urgent need to keep up their traditional obligations to natal kin so that they will have someone to turn to in times of trouble. Little wonder, then, that African women tell interviewers that they want and need such large families, and that the birthrate keeps rising.

In Africa, breaking into the black box - which nowhere else is a worse fit with empirical reality - may help to alleviate the two crises of underproduction of food and overproduction of babies. If women were recognized as primary farmers with their own set of income incentives and targeted accordingly, their returns from farming could increase, as would their ability to spend for their families' welfare. Their yields also presumably would increase so that it would no longer be necessary for their countries to spend scarce foreign exchange on food imports, or prepare for another round of famine. Furthermore, if development assistance were targeted to help their farming and cut the time they spend in unnecessary drudgery (including 4-5 hours a day just collecting water and wood), their need for children also should drop. This, in turn, should lead to a drop in the birthrate.

Finally, as Hess [75] has convincingly demonstrated in a major econometric study, as fertility falls in the developing countries, national income grows. In short, helping women so that they need

*Slash-and-burn horticulture typically involves farming a plot for 1-3 years and then letting it lie fallow for at least 5-6 years to regenerate; shortening this period lowers the yields and degrades the land.

fewer children helps the countries in which these women live. This starts with breaking into the black box.

Conclusions and policy recommendations

The present paper has attempted to make the case that the prevalent model of the family or household, which treats it as a monolithic entity, is inappropriate, and that it should be replaced by a new model of the flexible family. This new model recognizes the internal economy of the family, in which gender and age affect the distribution of everything from work to income to information to calories. The flexible-family model also can deal with the fact that men and women, and younger and older members, may have different resources, incentives and priorities, and they may have different degrees of interaction with the external economy of the family: a kin-based sharing and exchange network. Moreover, the flexible-family model can deal with female-headed households, as well as account for their increasing prevalence.

The present paper has emphasized gendered control of income as the most important aspect of the internal economy of the family, because it affects relative male/female power, and, in turn, women's degree of say in fertility, as well as in household decisions on allocating family resources to economic and welfare goals. In addition, men and women with provider obligations spend income under their control rather differently, with women devoting theirs more single-mindedly towards children's nutrition, education and other measures of well-being. Therefore, one outcome of replacing the old black-box model of the family with the new flexible, internal economy model should be an intensified concern for targeting development assistance resources and income to women as well as men. In conclusion the following four policy recommendations are proposed:

(a) For any new development project or programme, instead of assuming a single-production-function household, a rapid appraisal methodology should be used to specify the internal economy of the family for target groups. This should measure the division by gender and age of labour, time, resources and income for the various socio-economic and racial/ethnic sub-groups affected by the project;

(b) It then should be ascertained empirically that project information and resources are targeted to the right people within the family: those who do the work and those who reap the benefits;

(c) Wherever possible, women should be explicitly targeted for activities leading to increased income, since female-controlled income helps not only family wealth, but also family well-being. Furthermore, it is important to target not only wives, but also women heads of household;

(d) Project delivery systems (e.g. timing, cost and location of activities and benefits) should be reviewed to ascertain that they are appropriate for all the groups targeted; otherwise, they should be adapted to overcome any built-in constraints that diminish the access to, and retention of, benefits by any subgroup of beneficiaries, such as landless women.

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